United States
Environmental Protection
Agency

SUPERFUND FACT SHEET

Calhoun Park Area Site
Charleston, South Carolina

August 2005

INTRODUCTION

The Region 4 Office of the United States Environmental Protection Agency (EPA) in Atlanta, Georgia, is distributing this fact sheet to highlight certain activities which will be ongoing during the next few months to address the "off-site" intermediate groundwater plume at the Calhoun Park Area (CPA) Superfund Site. Work to address the contaminated sediments will be provided in another update. The EPA issued a Record of Decision (ROD) for Operable Unit #2 (OU#2) at the CPA Site located in Charleston, SC in September 2002. SCANA, in cooperation with EPA, the lead agency for site activities, and in consultation with the South Carolina Department of Health and Environmental Control (SCDHEC), has been working on various remedial design activities to address impacted sediments and intermediate groundwater at the CPA Site. This update supplements the original proposed plans and other EPA public correspondence for this site.

BACKGROUND

The Calhoun Park Area (CPA) Site is defined as the contiguous area within the borders of Charlotte, Concord, Calhoun and Washington Streets and specifically, the electrical substation property. This area was the location of a former manufactured gas plant (MGP), which operated from 1855 to 1957 by predecessors companies to South Carolina Electric & Gas, Company. The former MGP produced a product known as "town gas" by heating coal in the absence of oxygen. This process produced a combustible gas, which was collected and distributed to area homes and businesses as fuel for gas lamps and cooking stoves. Liquid coal tar was a common by-product of this process and is the primary source of environmental concern at this site.

The first proposed plan, presented to the public in 1998, addressed shallow impacted soil and shallow groundwater. Field operations for the soil and shallow groundwater began in August 1998. To date, approximately 62,000 tons of impacted material and debris, 3.1 million gallons of groundwater, and 14,000 gallons of recovered coal tar have been removed from the site.

The second proposed plan, issued by EPA in July 2002, constituted Operable Unit #2 (OU2) at the CPA Site and addressed intermediate groundwater and sediment in the adjacent Cooper River. A Unilateral Administrative Order (Order), dated September 24, 2003 directed SCANA Services Inc. (SCANA) to perform the Remedial Design and Remedial Actions described in the ROD. On October 2, 2003 a Statement of Work (SOW) prepared by U.S. EPA, and was provided to SCANA, which outlined work to be performed. A Final Remedial Design for Intermediate Groundwater (Final RD IGW), was submitted on May 4, 2004, approved by SCDHEC on May 20, 2004 and approved by EPA on June 1, 2004. A Draft Remedial Action Work Plan (RAWP) for OU#2, Intermediate Groundwater, was developed and submitted for approval in September 2004. The RAWP was approved in February 2005 and provided details for implementation of the approved remedial design.

THE REMEDIAL ACTION

Impacts to intermediate groundwater at this site primarily consist of PAHs (a large family of polyaromatic hydrocarbons) and BTEX (benzene, toluene, ethyl benzene and xylene). The areas of groundwater impacts vary and may exist in discrete intervals ranging from 30 to 80 feet below land surface. The primary source of impacts to groundwater was the coal tar, which was a by-product of the former gas plant operations. Although recovery efforts are on going, coal tar exists at this site in its original liquid form and is present within the subsurface soils in certain former process areas, which are inaccessible

due to the high-voltage electrical equipment. This liquid form of tar is referred to as Dense Non Aqueous Phase Liquid (DNAPL). The coal tar or DNAPL was identified in the subsurface soils in the general area of the old gas holder and the railroad spur at depths to fifty feet below land surface. In its present state, the coal tar remains in contact with groundwater and may be dissolving PAHs and BTEX constituents into the groundwater. This has resulted in a condition known as a "dissolved-phase plume". DNAPL recovery actions have been implemented.

UPCOMING ACTIVITIES

EPA considered several potential remedies during development and issuance of the ROD. For remediation of impacts to intermediate groundwater, EPA selected Alternative 4 - Institutional controls, DNAPL removal and *in-situ* treatment. DNAPL recovery actions have been implemented.

The remediation plan gradients involves a phased approach to cost-effectively reduce the overall coal tar mass and extent of the dissolved phase plumes in a manner consistent with the groundwater objectives and cleanup goals for the site. For Phase I, the plan is to significantly destroy contaminant mass via *in-situ* chemical oxidation by injecting Fenton's reagents in the upper and middle intermediate sand units off-site where the technology can be safely and securely implemented. Additional off-site sectors have been identified for application of PermeOx Plus® to enhance the natural biodegradation of dissolved phase constituents. *In-situ* treatment of the off-site groundwater plumes will result in a significant reduction (potentially 70% to 90%) of dissolved phase constituents in those sectors where Fenton's reagents are applied.

Planned monitoring of the groundwater, as set forth in the Performance Standards Verification Plan (PSVP) for the intermediate zone will document the reduction due to *in-situ* treatment.

The *in-situ* chemical oxidation (ISCO) treatment technology has been determined to be the most viable and effective remediation approach for the treatment of impacted groundwater in the intermediate zone at the CPA Site. The use of Fenton's reagents (hydrogen peroxide and catalysts) is the preferred *in-situ* chemical oxidant because of its ability to aggressively destroy contaminant mass through chemical reactions.

The upcoming work will focus on addressing the three (3) off-site treatment areas, which included:

·

- Sector 5: Rabin's Property;
- Sector 9: East Bay Property;
- Sector 12: Luden's Property;

The attached Figure 1 shows the treatment locations and a tentative schedule for implementing field activities is also provided.

PROPOSED WORK SCHEDULE

The Fenton's injection team will mobilize at the Rabin property on Monday, July 25th, and the chemical tank will arrive on Tuesday, July 26th. Injection will begin on Wednesday, July 27th and continue through Wednesday, August 3rd. Work on the East Bay Cleaner's property will begin on Monday, August 8th and continue through Wednesday, August 17th. Work at both locations will take place during normal business hours during the day. Security will be in place during evening hours.

Work on the Luden property, currently occupied by the IMAX theater will begin on August 23rd and continue through September 3rd. To avoid tourist traffic and ensure public safety, work at this property will be done during evening hours.

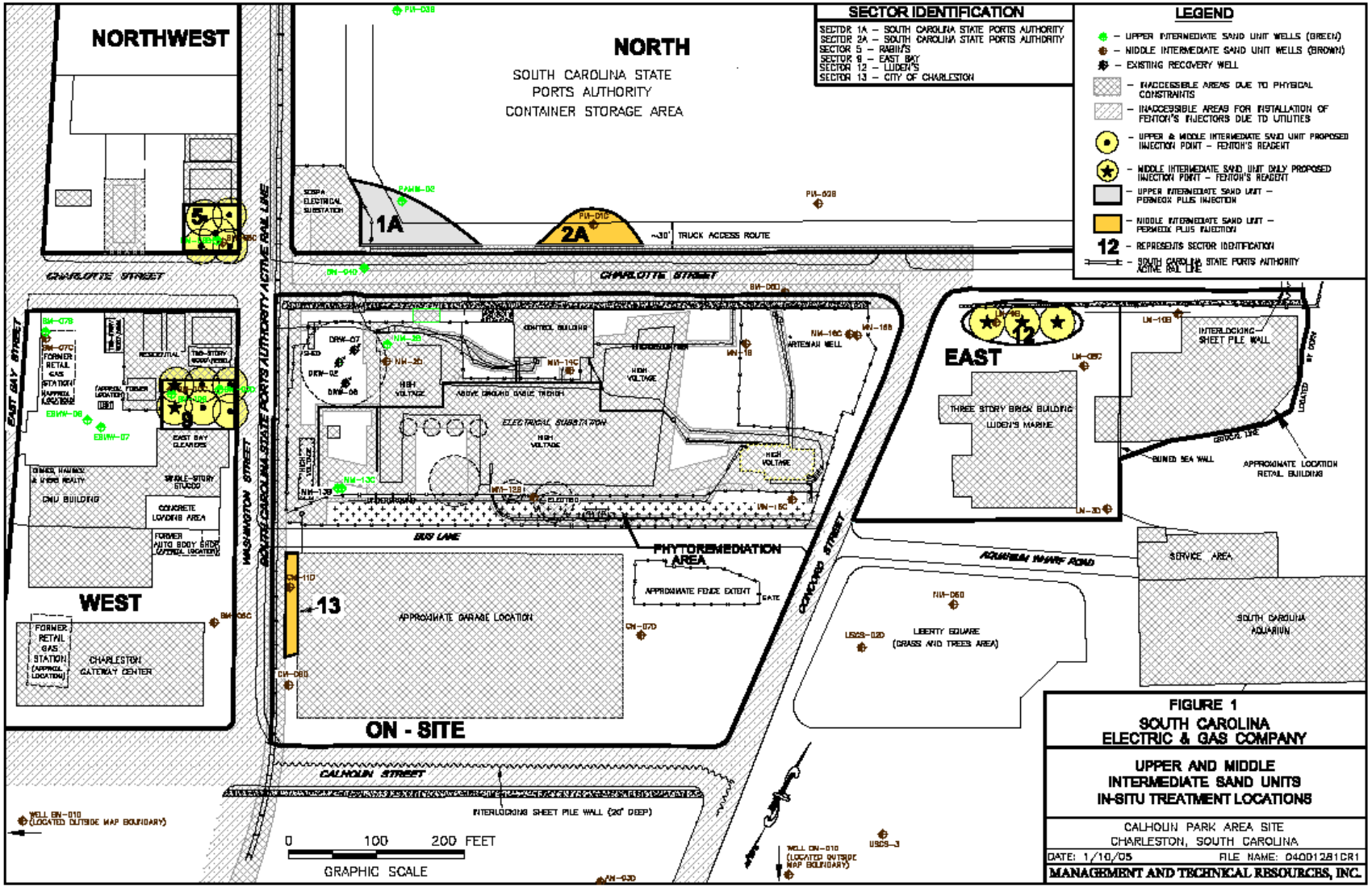


FIGURE 1
SOUTH CAROLINA ELECTRIC & GAS COMPANY

UPPER AND MIDDLE INTERMEDIATE SAND UNITS IN-SITU TREATMENT LOCATIONS

CALHOUN PARK AREA SITE
CHARLESTON, SOUTH CAROLINA

DATE: 1/10/05 FILE NAME: 040012B1CR1

MANAGEMENT AND TECHNICAL RESOURCES, INC.

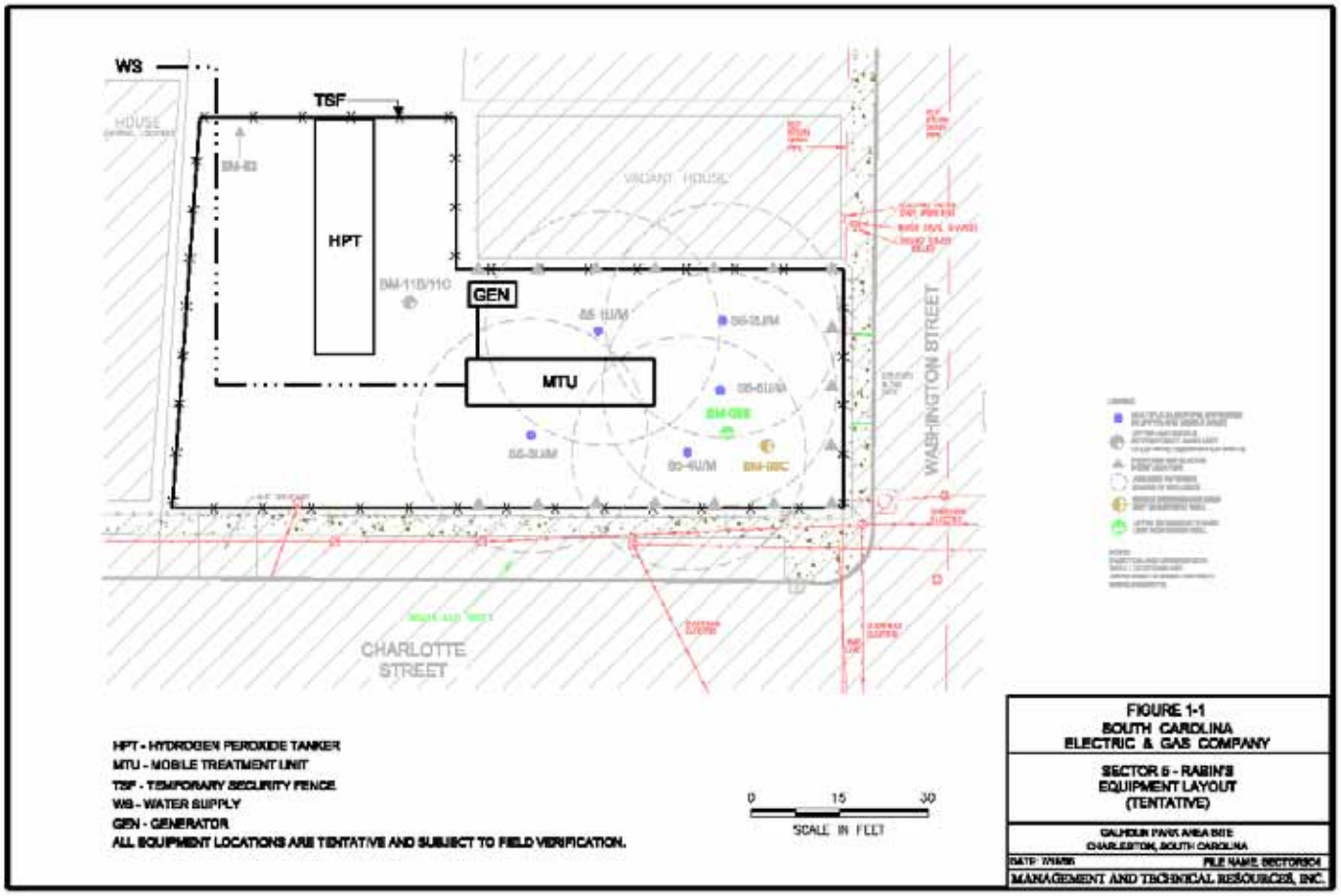


FIGURE 1-1
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

SECTOR 5 - RASIN'S
EQUIPMENT LAYOUT
(TENTATIVE)

CALHOUN PARK AREA SITE
CHARLESTON, SOUTH CAROLINA

DATE: 7/18/95 FILE NAME: SECTOR5C4

MANAGEMENT AND TECHNICAL RESOURCES, INC.

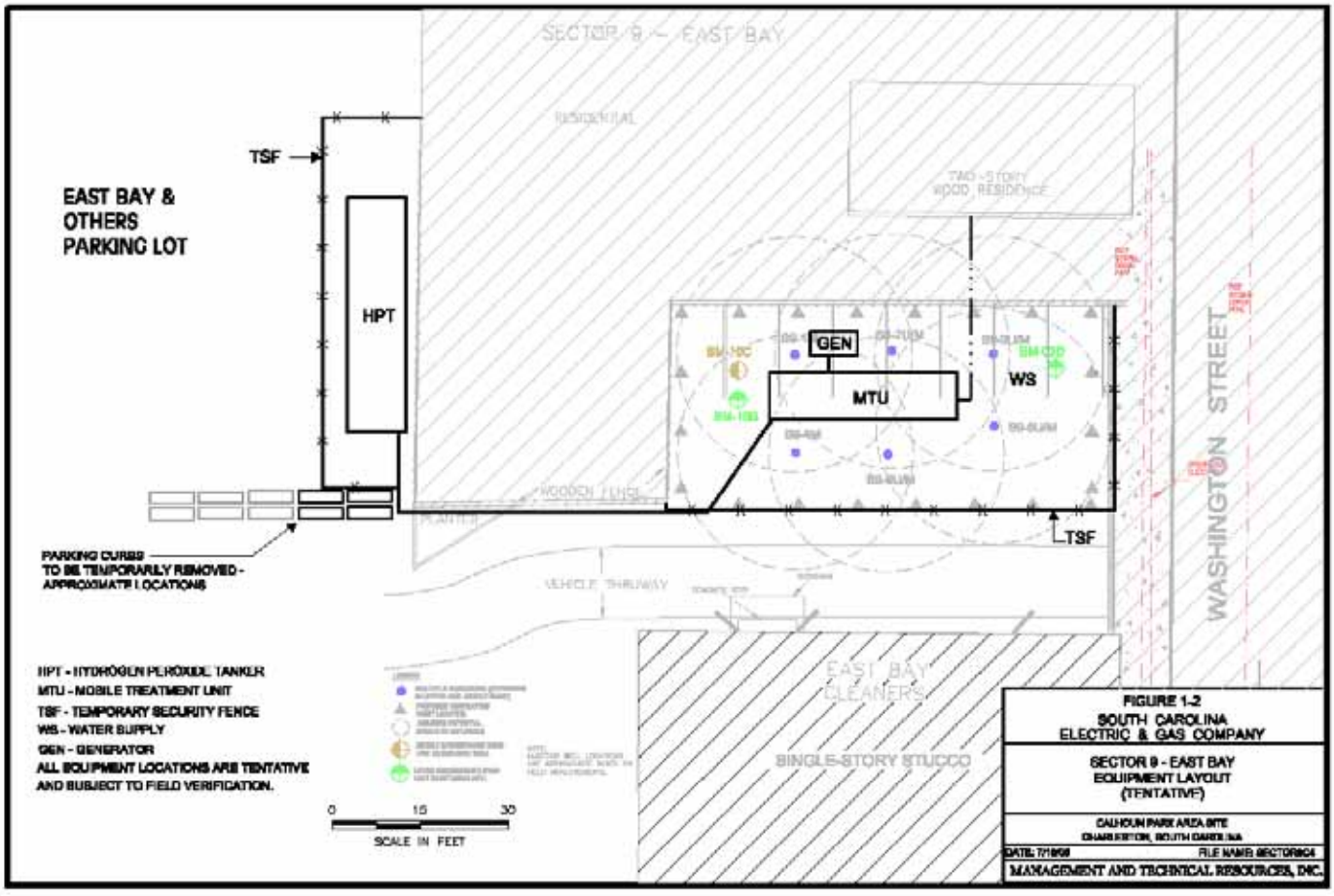


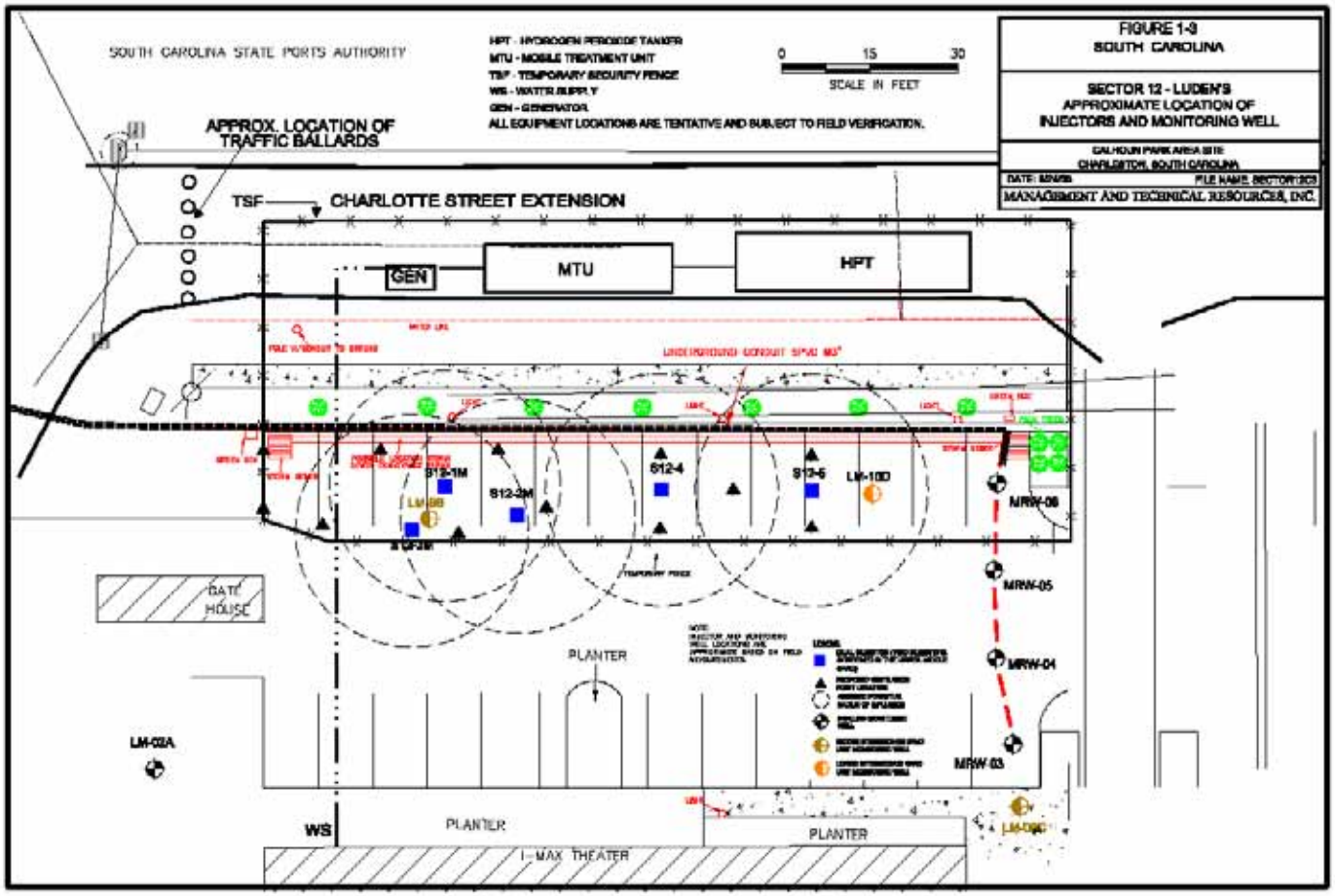
FIGURE 1-2
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

SECTOR 9 - EAST BAY
EQUIPMENT LAYOUT
(TENTATIVE)

CALHOUN PARK AREA SITE
CHARLESTON, SOUTH CAROLINA

DATE: 7/18/95 FILE NAME: SECTOR9C4

MANAGEMENT AND TECHNICAL RESOURCES, INC.


SOUTH CAROLINA STATE PORTS AUTHORITY
HPT - HYDROGEN PEROXIDE TANKER
MTU - MOBILE TREATMENT UNIT
TSF - TEMPORARY SECURITY FENCE
WS - WATER SUPPLY
GEN - GENERATOR
ALL EQUIPMENT LOCATIONS ARE TENTATIVE AND SUBJECT TO FIELD VERIFICATION.
0 15 30
SCALE IN FEET
FIGURE 1-3
SOUTH CAROLINA
SECTOR 12 - LUDEN'S
APPROXIMATE LOCATION OF
INJECTORS AND MONITORING WELL
CHARLESTON, SOUTH CAROLINA
MANAGEMENT AND TECHNICAL RESOURCES, INC.
APPROX. LOCATION OF
TRAFFIC BALLARDS
TSF
CHARLOTTE STREET EXTENSION
GEN
MTU
HPT
S12-1M
S12-2M
S12-4
S12-5
LM-10D
MRW-06
MRW-05
MRW-04
MRW-03
LM-03A
GATE
HOUSE
PLANTER
WS
PLANTER
PLANTER
I-MAX THEATER

Kenneth A. Lucas,
Remedial Project Manager
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-8953
Fax: (404) 562-8788
1-800-435-9233
E-mail: Lucas.Ken@epa.gov

Stephanie Y. Brown,
Community Involvement Coordinator
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-8561
Fax: (404) 562-8566
1-800-435-9233
E-mail:
Brown.Stephaniey@epa.gov

Kim A. Jones, EPA Attorney
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-9553
Fax: (404) 562-9486
1-800-435-9233
E-mail: Jones.KimA@epa.gov

Carl Terry, EPA Region 4 Office of External Affairs
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-8325
Fax: (404) 562-8335
E-mail: **Terry.Carl@epa.gov**

Richard Haynes, Project Mgr.
SC Department of Health and Environmental Control
2600 Bull Street
Columbia SC, 29201-1708
(803) 896-4070
Fax: (803)896-4292
E-Mail: **hyanesra@dhec.sc.gov**

Information Repositories

Charleston County Main Library
68 Calhoun Street
Charleston, SC 29401
(843) 805-6930
Hours: Mon-Thurs: 9:00am - 9:00pm, Friday and Saturday 9am - 6pm, Sunday 2pm -5pm

US EPA Region 4 Administrative Record Center
61 Forsyth Street, SW, 11th Floor
Atlanta, GA 30303
(404) 562-8946
Hours: Mon-Fri: 7:30am - 4:30pm

U.S. EPA Region 4 Library
9th Floor Reception Area
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-8190
Hours: Mon-Fri, 8 a.m. to 4 p.m.

U.S. EPA on the Internet - www.epa.gov